SOFTWARE REQUIREMENTS SPECIFICATION

for

Olympics Data Visualization

Prepared by : 1.Aashish Jain (19ESKIT001)
2. Anuj Sharma (19ESKIT011)
3. Devkinandan Sharma (19ESKIT023)
4. Divyansh Sharma (19ESKIT025)

Submitted to : Mrs. Richa Rawal
(Associate Prof., IT)

May 31, 2023

Contents

Revision History

Revision	Date	Author(s)	Description
1.0			
2.0			
3.0			
4.0			

Chapter 1

Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of the Visuals Analytics on Olympics Data that we will design and implement. Visual analytics present the insights in a digestible way by using visual data tools such as bar graphs, charts, heat maps and many more. By doing this, visual analytics tools allow developers to understand the relationship between variables easily and make better developing decisions.

1.2 Scope

The basic idea of visual analytics is to visually represent the information, allowing the human to directly interact with the information, to gain insight, to draw conclusions, and to ultimately make better decisions. The visual representation of the information reduces complex cognitive work needed to perform certain tasks. People may use visual analytics tools and techniques to synthesize information and derive insight from massive, dynamic, and often conflicting data by providing timely, defensible, and understandable assessments.

1.3 Technologies to be used

1. **Data Analytics :** It is the process of examining data sets in order to find trends and draw conclusions about the information they contain. Increasingly, data analytics is done with the aid of specialized systems and software.
2. **Python :** Python can aid in tasks like build control, bug tracking, and testing. Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.
3. **ReactJS:** ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components. It is an open-source, component-based frontend library which is responsible only for the view layer of the application.
4. **Spring Boot:** Spring Boot makes it easy to create stand-alone, production-grade Spring based Applications that you can "just run". Spring Boot is a Spring module that provides the RAD (Rapid Application Development) feature to the Spring framework.Spring Boot is a Spring module that provides the RAD (Rapid Application Development) feature to the Spring framework.

1.4 Overview

Visual analytics tools allow consumers to understand the relationship between variables easily and make better profitable decisions. The fields of information and scientific visualization deal with visual representations of data. The main difference among the two is that scientific visualization examines potentially huge amounts of scientific data obtained from sensors, simulations or laboratory tests

Chapter 2

Overall Description

2.1 Product Perspective

Visual analytics is the use of sophisticated tools and processes to analyze datasets using visual representations of the data. Visualizing the data in graphs, charts, and maps helps users identify patterns and thereby develop actionable insights.

2.2 Product Functions

Enlisted below are all the major functions supported by Visual Analytics on Olympic Data along with the user classes.

1. **Consumer**
    - Evaluate data
    - Make decision based on evaluation
2. **Admin**
    - Provide dataset
    - Update dataset
    - Integrate web service

2.3 User Classes and Characteristics

Users of the system should be able to understand the relationship between the table and the charts, graphs displayed in user interface. The user of the system are the members of Olympic Committee who can analyze data and make future decisions based on the statistic available.

2.4 Operating Environment

This software will work on all operating systems with a web browser with active internet connection.

2.5 Constraints

- GUI is only in English.
- Limited to HTTP/HTTPS or locally during development.
- This system is working for a single server.

2.6 Assumptions and Dependencies

1. The assumptions are:-
   - The coding should be error free.
   - The system should be user friendly so that it is easy to use for the users.
   - The system should have more capacity and provide fast access to the database.
   - The system should provide search facility and support quick transactions.
   - The website system is running twenty four hours a day.
   - Users may access from any computer that has internet browsing capabilities and an internet connection.
   - User must have their correct usernames and passwords to enter into the iron line accounts and do actions.
2. The dependencies are:-
   - The specific hardware and software due to which the product will be run.
   - On the basis of listing requirements and specification the project will be develop and run.
   - The end users (admin) should have proper understanding to the product.
   - The system should have the general report store.
   - The information of all users must be stored in a database that is accessible by the digital marketers.

Chapter 3

External Interface Requirements

Requirements refers to the needs of fabricated software to work efficiently and effectively, some of the requirements of this software are as follows:

3.1 User Interfaces

For the efficient working of the User Interface, i.e. the Front End of the system, the OS must be having at least Internet Explorer 8 installed. To login to the website.

3.2 Hardware Interfaces

For the hardware requirements, the SRS specifies the logical characteristics of each interface b/w the software product and the hardware components. It specifies the hardware requirements like memory restriction, cache size, processor, RAM etc. those are required for software to run.

1. **Minimum Hardware Requirements**
   - Hard Disk: 20GB and Above
   - RAM: 512MB and Above
   - Processor: Pentium III and Above
2. **Referred Hardware Requirements**
   - HDD 80 GB
   - RAM: 512 MB
   - Cache: 1 MB L1
   - Cache 512 KB L2

3.3 Software Interfaces

1. **For Hosting** - Any Windows Operations System with DOS Support and Virtual Studio for development. Primarily Windows 8 having Dream Weaver Installed with a working LAN connection to mandatory.
2. **For Using** - Any type of operating system with a Least Internet Explorer Installed and having minimum of 521 kbps working LAN compulsorily.

3. **Web Server** - Operating System (Windows)
4. **Data Base Server** - SQL, Operating System (Windows)
5. **Referred Software Requirements** -
    - Front End: ReactJs
    - Back End: Python, MySQL

Chapter 4

Functional Requirements

4.1 Evaluate Data

1. **User:** Members of Olympic committee
2. **Input:** All the data collected from the Olympic games from 1896.
3. **Output:** Tables and graphs to evaluate the data easily.
4. **Alternative flow(s) :** No results for the searched term/keyword and try checking your spelling or use more general terms.

4.2 Generate Data

1. **User:** Members of Olympic committee
2. **Input:** Olympic Data
3. **Output:** Particular data is generated based on the requirement of consumers and are suggested to use that data to grow.
4. **Alternative flow(s) :** none

4.3 Provide dataset

1. **User:** Members of Olympic committee
2. **Input:**All the graphs collected by visual analytics.
3. **Output:**Generate a dataset
4. **Alternative flow(s) :** none

4.4 Update dataset

1. **User:** Members of Olympic committee
2. **Input:**An already existing dataset
3. **Output:**Update the dataset
4. **Alternative flow(s) :** none

Chapter 5

Nonfunctional Requirements

Non-functional requirements make up a significant part of the specification. They are important as the client and user may well judge the product on its non-functional properties. Provided the product meets its required amount of functionality, the non-functional properties – how usable, convenient, inviting and secure it is – may be the difference between an accepted, well-liked product, and an unused one.

5.1 Performance Requirements

Performance of making recommendation and updating this recommendation is very important issue because we are aiming to make the system real-timed. In other words, the system should have enough speed that users of the system cannot realize the processing of data. In order to make system real-timed, at the end of listening track or after purchasing track system shall update recommendations. Besides, our web service should handle multiple users at the same time.

5.2 Safety Requirements

No safety requirements have been identified.

5.3 Security Requirements

Database has to be reached securely and its data should not be broken. It also should not change except interagent updates. Moreover, since our dataset contain some personal information of user such as user-id, tracks he/she listened, security design is important in the web service.

5.4 Software Quality Attributes

1. There may be multiple admin's creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes.
2. The project should be open source.
3. The quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database.
4. The user be able to easily download and install the system

Chapter 6

Other Requirements

6.1 Use Case Diagram

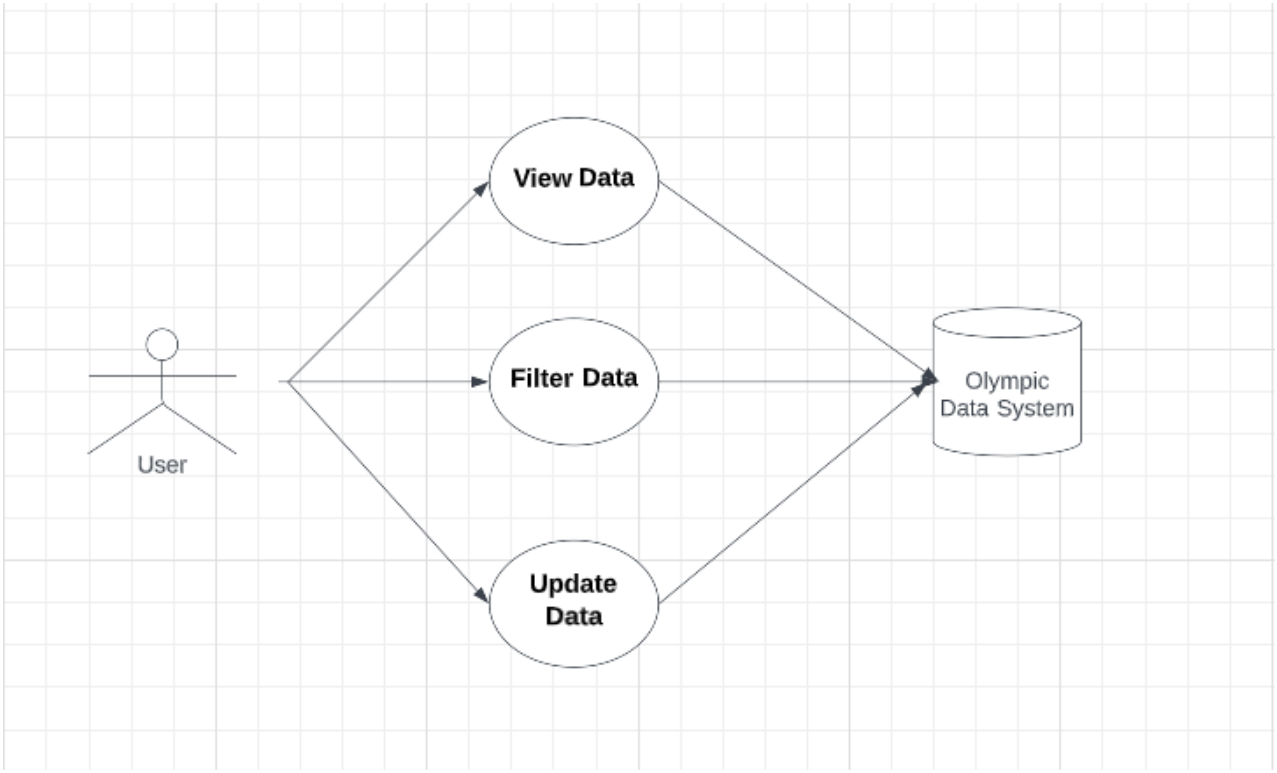

Figure 6.1: Use Case Diagram

6.2 Entity Relationship Diagram

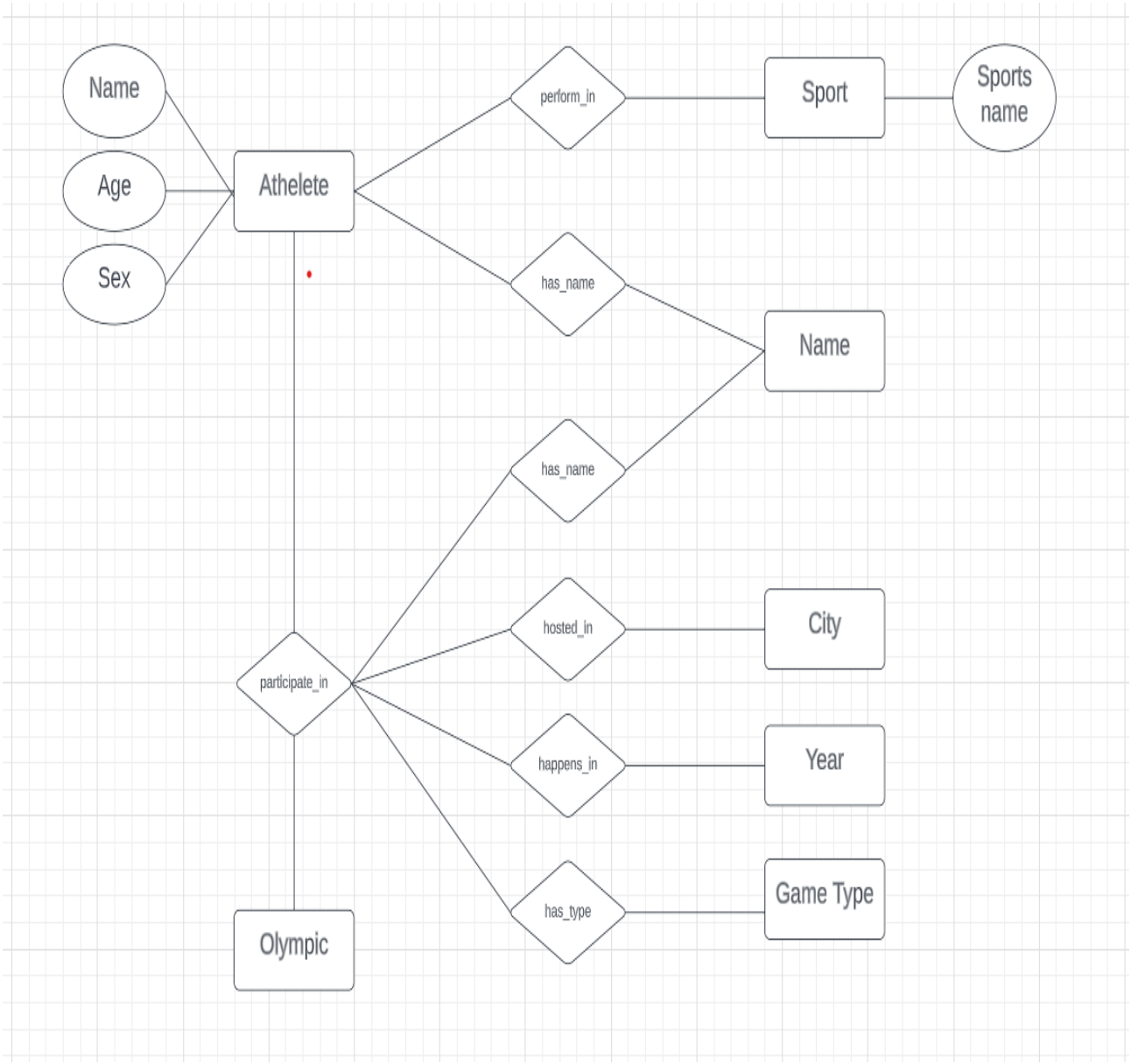

Figure 6.2: ER Diagram

6.3 Activity Diagram

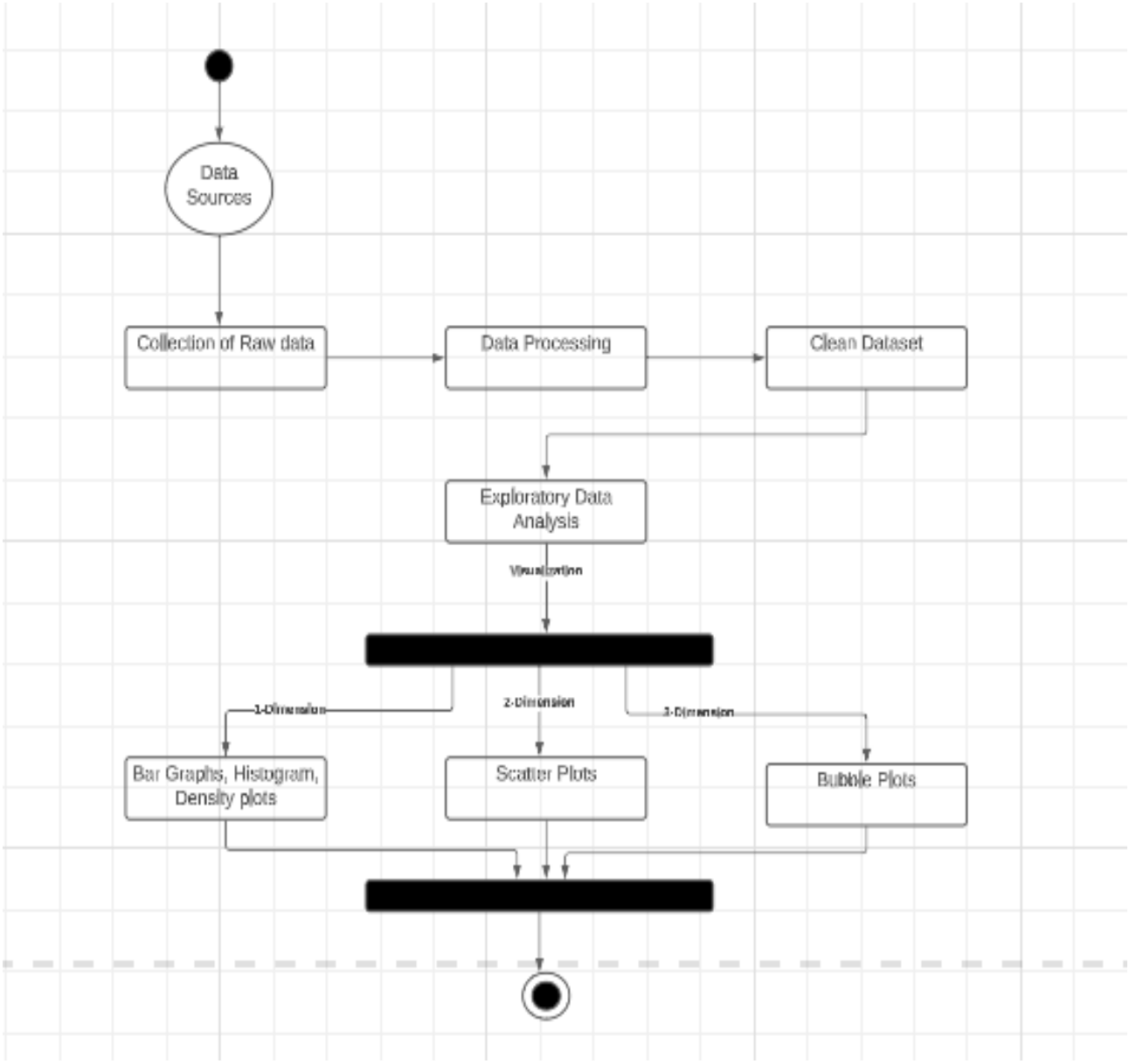

Figure 6.3: Activity Diagram

6.4 Sequence Diagram

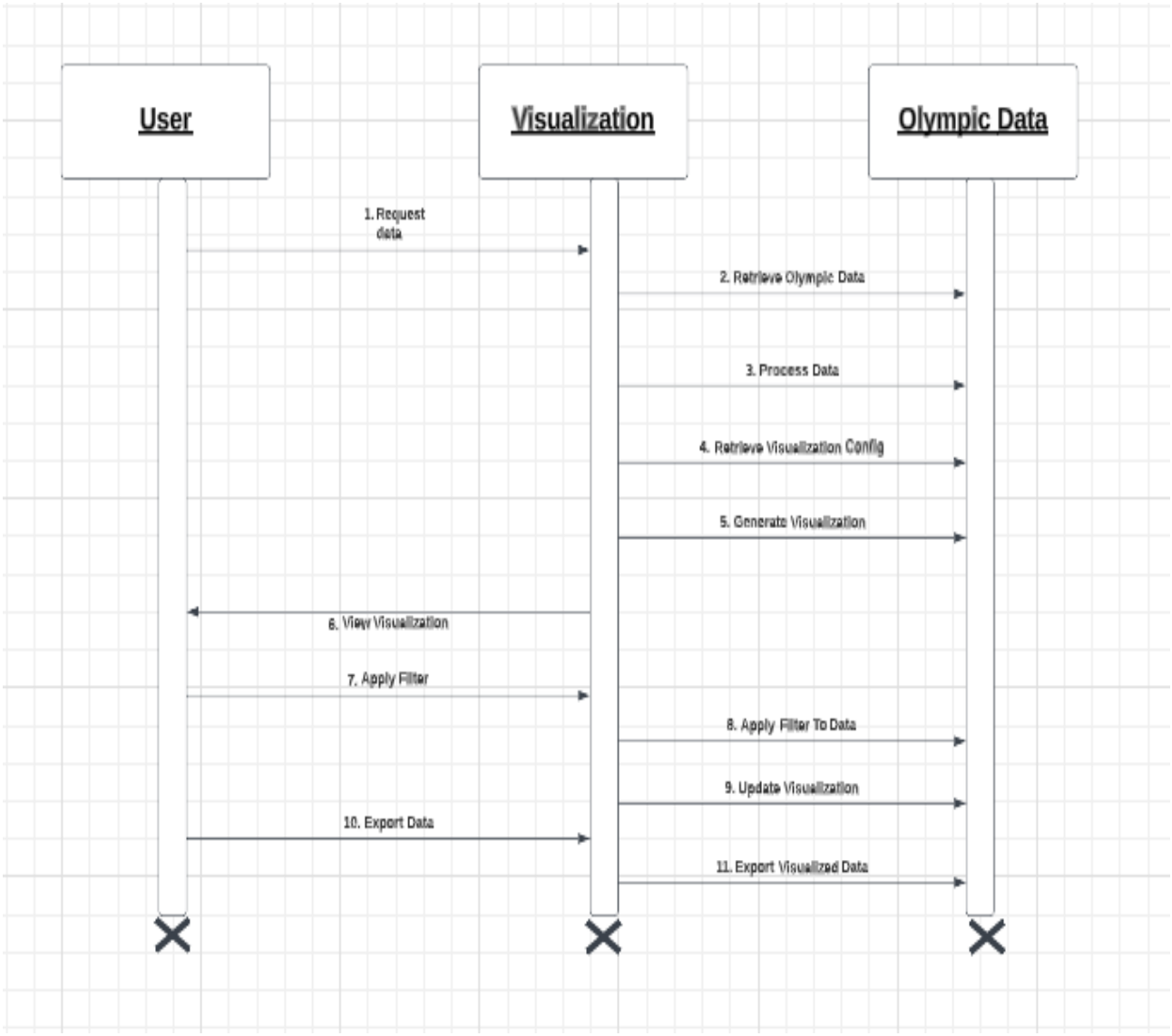

Figure 6.4: Sequence Diagram

6.5 Class Diagram

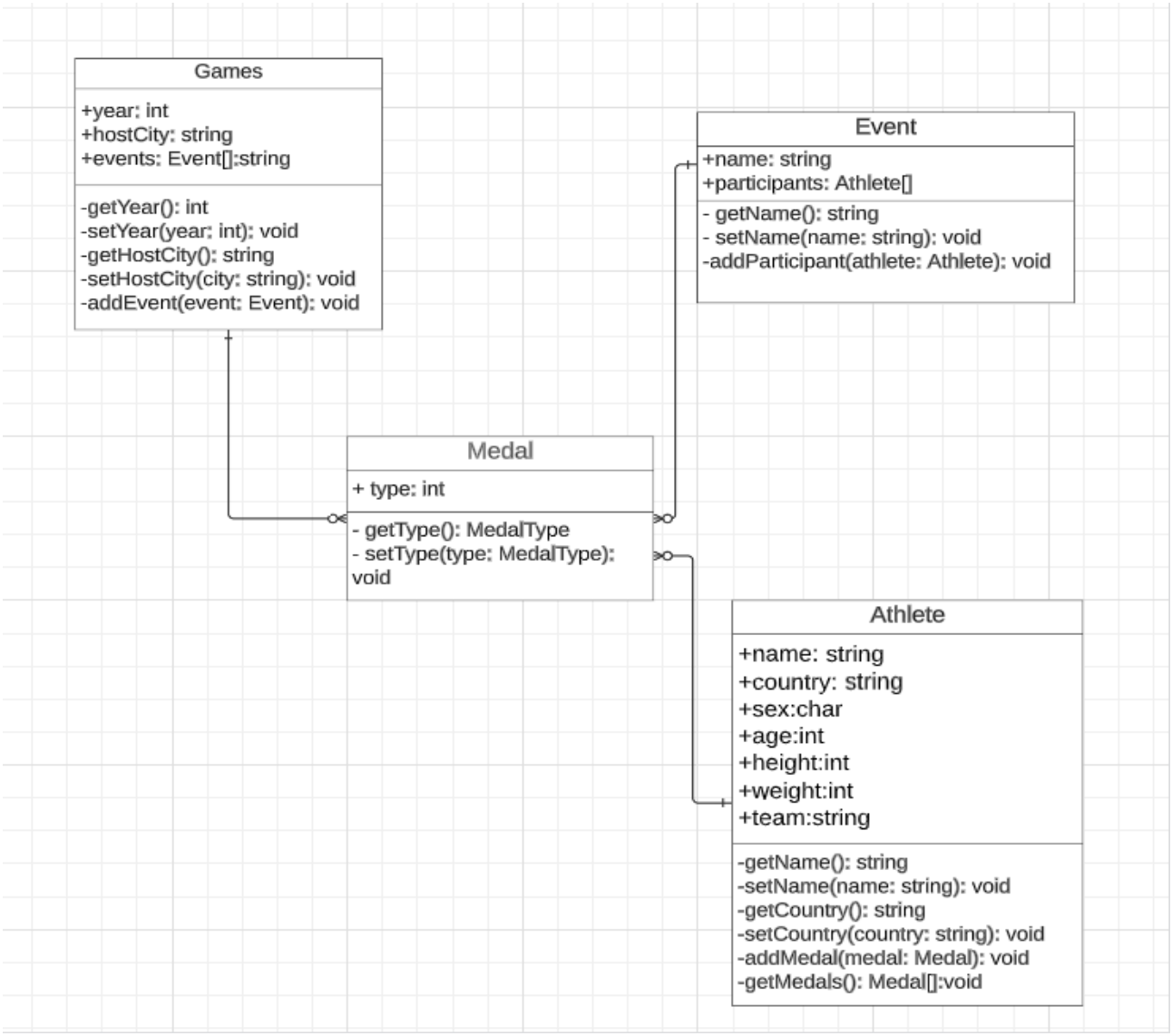

Figure 6.5: Class Diagram

6.6 Deployment Diagram

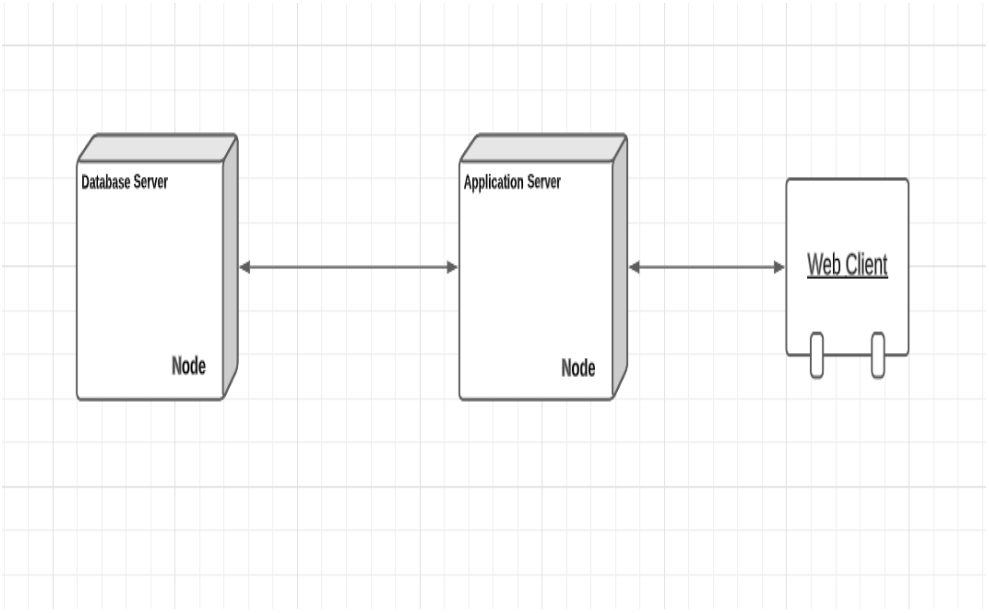

Figure 6.6: Deployment Diagram

6.7 Data Flow Diagram

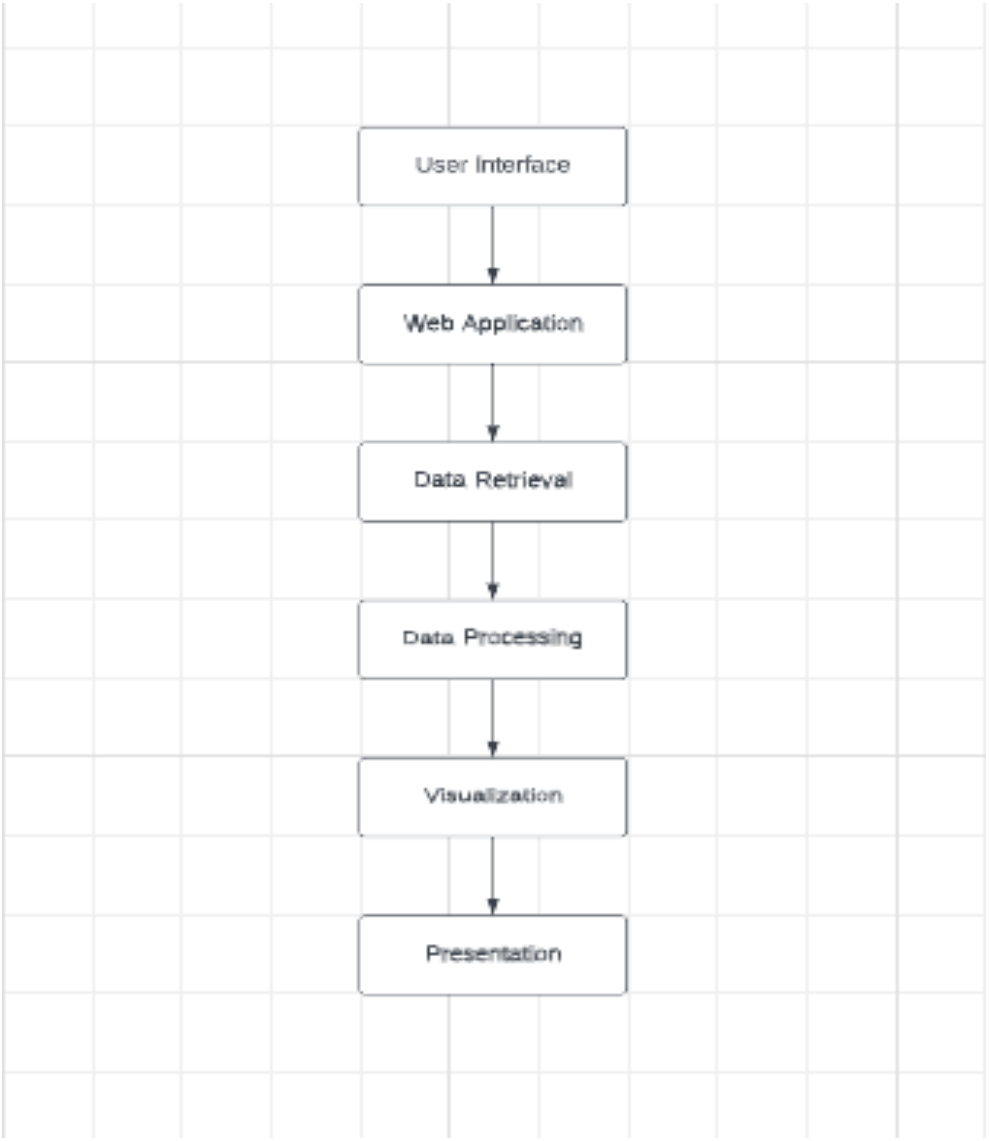

Figure 6.7: Data Flow Diagram

Chapter 7

References

1. Wikipedia contributors: https://en.m.wikipedia.org/wiki/Olympic Games, last accessed 2020/11/02.
2. Dey S K, Rahman M M, Siddiqi U R and Howlader A 2020 Analyzing the epidemiological outbreak of COVID-19: A visual exploratory data analysis approach J. Med. Virol. 92 632–8
3. Bondu R, Cloutier V, Rosa E and Roy M 2020 An exploratory data analysis approach for assessing the sources and distribution of naturally occurring contaminants (F, Ba, Mn, As) in groundwater from southern Quebec (Canada) Appl. Geochem. 114 104500
4. Cutait, M.: Management performance of the Rio 2016 Summer Olympic Games. Research Paper submitted and approved to obtain the Master's degree in Sports Administration at AISTS in Lausanne, Switzerland.
5. Moreno A, Moragas M and Paningua R 1999 The evolution of volunteers at the Olympic Games Proceedings of Symposium on Volunteers (Lausanne, Switzerland: Global Society and the Olympic Movement) pp 1–18
6. Github link:https://github.com/anujsharmas2001/Olympic-Data-Visualization